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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

**CHIP-TECH, LTD.,**

Plaintiff, and on behalf of all others similarly situated,

v.

**PANASONIC CORPORATION; PANASONIC CORPORATION OF NORTH AMERICA; SANYO ELECTRIC GROUP, LTD.; SANYO ELECTRONIC DEVICE (U.S.A.) CORPORATION; TAIYO YUDEN CO., LTD.; TAIYO YUDEN (USA) INC.; NEC TOKIN CORPORATION; NEC TOKIN AMERICA, INC.; KEMET CORPORATION; KEMET ELECTRONICS CORPORATION; NIPPON CHEMI-CON CORPORATION; UNITED CHEMI-CON CORPORATION; HITACHI CHEMICAL CO., LTD.; HITACHI CHEMICAL COMPANY AMERICA, LTD.; NICHICON CORPORATION; NICHICON (AMERICA) CORPORATION; AVX CORPORATION; RUBYCON CORPORATION; RUBYCON AMERICA INC.; ELNA CO., LTD.; ELNA AMERICA INC.; MATSUO ELECTRIC CO., LTD.; TOSHIN KOGYO CO., LTD.; VISHAY INTERTECHNOLOGY, INC.; SAMSUNG ELECTRO-MECHANICS; SAMSUNG ELECTRO-MECHANICS AMERICA, INC.; ROHM CO., LTD.; and ROHM SEMICONDUCTOR U.S.A., LLC,**

Defendants.

Case No.

**ANTITRUST CLASS ACTION COMPLAINT**

JURY TRIAL DEMANDED

Plaintiff Chip-Tech, Ltd. ("Plaintiff") brings this action individually, and on behalf of a class of all persons and entities similarly situated (the "Class"), for damages and injunctive relief under the antitrust laws of the United States against defendants Panasonic Corporation; Panasonic Corporation of North America; Sanyo Electric Group, Ltd.; Sanyo Electronic Device (U.S.A.) Corporation; Taiyo Yuden Co., Ltd.; Taiyo Yuden (USA) Inc.; NEC Tokin Corporation; NEC Tokin America, Inc.; KEMET Corporation; KEMET Electronics Corporation; Nippon Chemi-Con Corporation; United Chemi-Con Corporation; Hitachi Chemical Co., Ltd.; Hitachi Chemical Company America, Ltd.; Nichicon Corporation; Nichicon (America) Corporation; AVX Corporation; Rubycon Corporation; Rubycon America Inc.; Elna Co., Ltd.; Elna America Inc.; Matsuo Electric Co., Ltd.; Toshin Kogyo Co., Ltd.; Vishay Intertechnology, Inc.; Samsung Electro-Mechanics; Samsung Electro-Mechanics America, Inc.; ROHM Co., Ltd.; and ROHM Semiconductor U.S.A., LLC (together, the "Defendants"). Plaintiff alleges facts regarding itself based on personal knowledge, and on information and belief as to all other factual allegations, as follows:

## NATURE OF THE ACTION

1. This civil antitrust action seeks damages and injunctive relief for the collusive and concerted restraint of trade in aluminum and tantalum electrolytic capacitors orchestrated by the Defendants—all of whom are leading manufacturers and direct competitors in the global capacitors industry—during a period spanning from at least January 1, 2005 to present (the "Class Period").

2. Capacitors are one of the fundamental components found in electrical circuits. All electronic devices we use today—from the cheapest household appliances to our personal computers to multi-million dollar machinery and vehicles—employ various electrical circuits working in concert to perform the various tasks for which we use them. By electrical current flowing through a circuit, the path for which is usually defined by a printed circuit board ("PCB"), electronic signals can be amplified, simple and complex computations can be performed, data can be moved from one place to another, and the myriad other tasks that make our electronic devices perform can be executed.

3. Without the flow of electrical current, circuit boards—as well as the devices that contain them—will not work. Accordingly, circuits must not only have a source for current, but also means for storing and regulating the flow of that current. While either a battery or a connection to an external

power supply typically provides current to a circuit, capacitors are integrated into electrical circuits primarily to store charge and govern its flow so that the tasks and applications we ask of our electrical devices have sufficiently available and immediately dischargeable electrical charge to perform when commanded to do so.

4. Capacitors are ubiquitous components in the electronic devices we use. Indeed, it is nearly impossible to think of a device that does not contain at least one capacitor. An average smartphone, for example, employs between 300 to 500 capacitors of varying capacitance (*i.e.*, the potential amount of charge a capacitor can store), dielectric (*i.e.*, the insulating material in the capacitor that allows it to hold a charge) and form factors (*i.e.*, size and shape). Computers can contain anywhere between 100 and 700 capacitors mounted on and integrated into their motherboards and daughterboards. Most modern automobiles use hundreds of capacitors in their onboard electrical, navigation, entertainment and diagnostic systems.

5. As society's dependence on technology has grown, so too has the demand of electronic device manufacturers for the components necessary to produce their innovative products. Given that capacitors are fundamental to the operation of practically all electronic devices, it is not surprising that the market for capacitors is big business. Indeed, recent reports indicate that global revenues for all manufacturers in the capacitor industry in 2013 totaled approximately $16 billion based on the sales of trillions of capacitors, and industry analysts estimate that global revenues will reach over $18 billion for the fiscal year 2014 and over $20 billion by 2016. These numbers are extraordinary, especially when the average price per unit for capacitors over the last five years has been $0.01178, or $11.78 per thousand units.

6. The multi-billion dollar market for capacitors, however, is one susceptible to anticompetitive manipulation. Given the significantly high barriers to entering the already mature capacitors manufacturing industry and achieving the large volume of sales required to reach economies of scale and profitability, the global capacitors market is dominated by a limited number of large manufacturers. This is especially true in the market for aluminum and tantalum electrolytic capacitors. The fact that these supposed competitors (specifically the Defendants named herein) sell mutually interchangeable commoditized products and adjust the prices and market availability of their products

in concert indicate that true competition in the capacitors market has been foreclosed.

7. Generally speaking, capacitors of like capacitance, dielectric and form factor are mutually interchangeable. Price is thus the most obvious differentiation among these products for purchasers. Accordingly, any agreement among manufacturers to fix, raise, maintain or stabilize prices on aluminum and tantalum electrolytic capacitors or to reduce their market availability without justification, reduces or even negates price competition to the detriment of purchasers.

8. The threat of anticompetitive manipulation in the aluminum and tantalum electrolytic capacitors market is not a hypothetical concern. Rather, the threat has become reality due to the actions of Defendants, who, as the leading global manufacturers of these types of electrolytic capacitors, have collusively and concertedly manipulated price competition for capacitors directed to both U.S. and international purchasers over nearly a decade. Indeed, after many years of active concealment, Defendants' anticompetitive acts recently have drawn the attention of law enforcement and regulatory agencies in the United States, the People's Republic of China, Japan, South Korea, Taiwan and Europe, all of which opened investigations earlier this year. At least one capacitor manufacturer, believed to be Defendant Panasonic, has self-reported its unlawful price fixing and is cooperating with authorities in at least the United States and China in exchange for amnesty from prosecution, and has disclosed background details regarding the cartel's membership and the scope of Defendants' conspiracy.

9. Defendants formed, maintained, enforced and concealed a global cartel. Defendants took these unlawful steps because demand for their aluminum and tantalum electrolytic capacitor product lines began to wane in the early 2000s. While aluminum electrolytic capacitors have been relied upon by electronics manufacturers for decades, and used in products such as televisions, stereos, and desktop computers, they tend to be bulky in size and shape relative to other capacitors and are limited in the amount of capacitance they can provide at smaller sizes. In other words, they lack "volumetric efficiency." As technology has advanced in the last decade toward smaller, more portable and multifunctional devices—*e.g.*, from desktop computers to tablets and smartphones, or from stereos to personal music devices—many electronics manufacturers could no longer afford to provide aluminum electrolytic capacitors a footprint on the PCBs in their streamlined and compact products.

10. Tantalum capacitors have significantly better volumetric efficiency than aluminum

capacitors because of tantalum's natural non-conductive properties and its thinner dielectric, as well as the ability of manufacturers to produce very small tantalum capacitors with high capacitance. But making these capacitors is expensive; it is a labor- and resource-intensive process. Even without Defendants' anticompetitive acts, tantalum electrolytic capacitors are more expensive than other capacitors. Further, due to certain of their physical properties, tantalum capacitors can short circuit and catch fire if subjected to voltage spikes only slightly more than their rated capacitance value, at times destroying the devices in which they are installed.

11. Since at least early 2000s, Defendants have been faced with declining demand for and profits from the sale of their aluminum and tantalum electrolytic capacitor product portfolios. Nonetheless, there remains a sizeable market for these capacitors. Industry analysts report that global revenues for aluminum and tantalum electrolytic capacitors were approximately $5.74 billion for fiscal year 2013, though this was approximately a $570 million drop from 2012 and nearly a $1.1 billion drop from 2005. To slow any further decline in demand, and to ensure that sales of their respective product portfolios would remain profitable, Defendants agreed that price competition among themselves for their mutually interchangeable aluminum and tantalum electrolytic capacitors had to cease.

12. For at least the last nine and a half years, Defendants conspired together by directly and indirectly communicating with each other to effectuate a scheme to control market prices of aluminum and tantalum electrolytic capacitors directed toward and sold into the United States market. Defendants also agreed to combine and perform the various acts necessary to achieve the anticompetitive purposes of this scheme.

13. This conspiracy was furthered and facilitated by a course of anticompetitive conduct, including agreements and understandings among Defendants to fix, raise, maintain and stabilize prices for aluminum and tantalum electrolytic capacitors and to restrain their respective product output through extending product lead times based on pretextual reasons.

14. The conspiracy was facilitated by the cartelized nature of the aluminum and tantalum electrolytic capacitor industry, which is dominated by and consists primarily of Defendants, who in the past held and continue to hold secret discussions, and who made agreements between and among themselves to exchange nonpublic and commercially sensitive information concerning pricing,

production capacity, costs, raw materials, and distribution. From the inception of the conspiracy to date, Defendants have concealed their anticompetitive and unlawful conduct from the public, including Plaintiff and the Class, in furtherance of the conspiracy.

15. Defendants' cartel has been successful in achieving the anticompetitive and unlawful ends for which it was formed. Through their concerted actions, Defendants created the market conditions that made it economically feasible for all cartel members to fix, raise, maintain or stabilize artificially high prices on the capacitors they sold during the Class Period to purchasers in the United States. Defendants were effective in moderating—and even negating—the normal downward pressures on prices for capacitors caused by price competition, oversupply, reduction of demand and technological change.

16. Defendants' anticompetitive and unlawful conduct resulted in the increase or slowed the decrease of aluminum and tantalum capacitor prices for products sold in the United States during the Class Period. As a result, Plaintiff and the Class paid artificially inflated prices for the capacitors they directly purchased from Defendants. By paying these inflated prices, which exceeded the amount Plaintiff and the Class would have paid for the aluminum and tantalum electrolytic capacitors they purchased if pricing for the capacitors had been determined by a competitive market, Plaintiff and the Class have been injured in their business and property and continue to suffer such injuries to date as a direct and proximate result of Defendants' actions.

## JURISDICTION AND VENUE

17. Plaintiff brings this action on its own behalf as well as that of the Class to recover damages, including treble damages, costs of suit, and reasonable attorney's fees arising from Defendants' violations of Section 1 of the Sherman Act (15 U.S.C. § 1), as well as any and all equitable relief afforded them under the federal laws pleaded herein.

18. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1337(a) and Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15(a) and 26).

19. Jurisdiction and venue are proper in this judicial district pursuant to Section 12 of the Clayton Act (15 U.S.C. § 22), and 28 U.S.C. § 1391(b), (c) and (d), because a substantial part of the events giving rise to Plaintiff's claims occurred in this District, a substantial portion of the affected

interstate trade and commerce was carried out in this District, and one or more of the Defendants reside in this District, is licensed to do business in this District, or transacts business in this District. In addition, the media has reported that the Antitrust Division of the United States Department of Justice ("DOJ") is conducting an investigation into the capacitors industry and that the investigation is being conducted out of the United States Attorney's Office for the District of Northern California. Based on the DOJ's past practice with regard to similar antitrust investigations, Plaintiff believes that a federal criminal grand jury either has been or will soon be empaneled in the Northern District of California to hear the DOJ's evidence derived from this investigation and ultimately decide on whether to criminally indict any capacitors manufacturers (such as one or more of the Defendants in this antitrust class action). Accordingly, the DOJ's San Francisco-based capacitors industry investigation, and the likely empanelment of a grand jury here, are additional facts confirming the propriety of the Northern District of California as the venue for this antitrust class action.

20. Pursuant to Civil Local Rule 3.2 (c) and (e), assignment of this case to the San Francisco Division of the United States District Court for the Northern District of California is proper because the interstate trade and commerce involved and affected by Defendants' violations of the antitrust laws action was substantially conducted with, directed to or impacted Plaintiff and members of the Class in counties located within the Division.

## PARTIES

### Plaintiff

21. Plaintiff Chip-Tech, Ltd. is a New York corporation with its principal place of business located at 6 Dubon Court, Farmingdale, New York 11735. Plaintiff purchased aluminum and tantalum electrolytic capacitors directly from one or more Defendants during the Class Period, and has suffered injury as a result of Defendants' anticompetitive and unlawful conduct.

### Defendants

**1. Panasonic and Sanyo**

22. Defendant Panasonic Corporation is a Japanese corporation with its principal place of business located at 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501, Japan. Until October 1, 2008, Panasonic Corporation operated under the name of Matsushita Electric Industrial Co., Ltd. During the

Class Period, Panasonic Corporation manufactured, sold and distributed aluminum and tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

23. Defendant Panasonic Corporation of North America, a wholly owned subsidiary of Panasonic Corporation, is a Delaware corporation with its principal place of business located at Two Riverfront Plaza, Newark, New Jersey 07102. During the Class Period, Panasonic Corporation of North America sold and distributed aluminum and tantalum electrolytic capacitors to customers throughout the United States.

24. Defendant Sanyo Electric Group, Ltd., a Japanese corporation, is, as of December 2009, a wholly owned subsidiary of Panasonic Corporation, with its principal place of business located at 15-5, Keihan-Hondori, 2-Chome, Moriguchi City, Osaka 570-8677, Japan. During the Class Period, Sanyo Electric Group, Ltd., manufactured, sold and distributed aluminum tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

25. Defendant Sanyo Electronic Device (U.S.A.) Corporation, a Delaware corporation, is a wholly owned subsidiary of Sanyo Electric Group, Ltd., with its principal place of business located at 2055 Sanyo Avenue, San Diego, California 92154. During the Class Period, Sanyo Electronic Device (U.S.A.) Corporation sold and distributed tantalum electrolytic capacitors to customers throughout the United States.

26. Defendants Panasonic Corporation, Panasonic Corporation of North America, Sanyo Electric Group, Ltd., and Sanyo Electronic Device (U.S.A.) Corporation are collectively referred to herein as "Panasonic." With regard to any allegations pertaining to Sanyo Electric Group, Ltd. and Sanyo Electric Device (U.S.A.) Corporation prior to their acquisition by Panasonic, they are referred to herein as "Sanyo."

**2. Taiyo Yuden**

27. Defendant Taiyo Yuden Co., Ltd., is a Japanese corporation with its principal place of business located at 6-16-20, Ueno, Taito-ku, Tokyo 110-0005, Japan. During the Class Period, Taiyo Yuden Co., Ltd., manufactured, sold and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

28. Defendant Taiyo Yuden (USA) Inc., an Illinois corporation, is a wholly owned subsidiary of Taiyo Yuden Co., Ltd., with its principal place of business located at 10 North Martingale Road, Suite 575, Schaumburg, Illinois 60173. During the Class Period, Taiyo Yuden (USA) Inc. sold and distributed aluminum and/or tantalum electrolytic capacitors to customers throughout the United States.

29. Defendants Taiyo Yuden Co., Ltd., and Taiyo Yuden (USA) Inc. are collectively referred to herein as "Taiyo Yuden."

**3. NEC Tokin**

30. Defendant NEC Tokin Corporation is a Japanese company with its principal place of business located at 7-1, Kohriyama 6-chome, Taihaku-ku, Sendai-shi, Miyagi 982-8510, Japan. During the Class Period, NEC Tokin Corporation manufactured, sold, and distributed aluminum and/or tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates throughout the United States.

31. Defendant NEC Tokin America, Inc., a California Corporation, is a wholly owned subsidiary of NEC Tokin Corporation with its principal place of business located at 2460 North First Street, Suite 220, San Jose, California 95131. During the Class Period, NEC Tokin America, Inc., sold and distributed aluminum and/or tantalum electrolytic capacitors throughout the United States.

32. Defendants NEC Tokin Corporation and NEC Tokin America, Inc., are together referred to herein as "NEC Tokin."

**4. KEMET**

33. Defendant KEMET Corporation is a Delaware corporation with its principal place of business located at 2835 Kemet Way, Simpsonville, South Carolina 29681. During the Class Period, KEMET Corporation manufactured, sold and distributed aluminum and tantalum electrolytic capacitors directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

34. On March 12, 2012, KEMET Corporation announced that it agreed to form a capital and business alliance with NEC Tokin Corporation because of their respective professed interests in increasing its tantalum electrolytic capacitor sales, reducing costs in areas such as procurement and

production, sharing their technological knowledge, and benefiting financially through the cross-selling of each other's products. As a result of this alliance, KEMET received 34% of the outstanding shares of NEC Tokin (the remainder being held by non-party NEC Corporation), which provided KEMET with 51% of the outstanding voting rights. KEMET currently holds the option to purchase NEC Corporation's shares in NEC Tokin, which would thereby effect an acquisition of NEC Tokin by KEMET.

35. Defendant KEMET Electronics Corporation, a Delaware corporation, is a wholly owned subsidiary of KEMET Corporation with its principal place of business located at 2835 Kemet Way, Simpsonville, South Carolina 29681. During the Class Period, KEMET Electronics Corporation manufactured, sold and distributed aluminum and tantalum electrolytic capacitors directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

36. Defendants KEMET Corporation and KEMET Electronics Corporation are together referred to herein as "KEMET." The KEMET-NEC Tokin alliance shall be referred to herein as "KEMET-NEC Tokin."

**5. Nippon Chemi-Con**

37. Defendant Nippon Chemi-Con Corporation is a Japanese corporation with its principal place of business located at 5-6-4, Osaki, Shinagawa-ku, Tokyo 141-8605, Japan. During the Class Period, Nippon Chemi-Con Corporation manufactured, sold, and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

38. Defendant United Chemi-Con Corporation, an Illinois Corporation, is a wholly owned subsidiary of Nippon Chemi-Con Corporation with its principal place of business located at 9801 West Higgins Road, Rosemont, Illinois 60018. During the Class Period, United Chemi-Con manufactured, sold and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

39. Defendants Nippon Chemi-Con Corporation and United Chemi-Con Corporation are together referred to herein as "Nippon Chemi-Con."

**6. Hitachi Chemical**

40. Defendant Hitachi Chemical Co., Ltd., is a Japanese corporation with its principal place of business located at Grantokyo South Tower, 1-9-2, Marunouchi, Chiyoda-ku, Tokyo, 100-6606, Japan. During the Class Period, Hitachi Chemical Co., Ltd., manufactured, sold, and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

41. Defendants Hitachi Chemical Company America, Ltd., a New York corporation, is a wholly owned subsidiary of Hitachi Chemical Co., Ltd. with its principal place of business located at 10080 North Wolfe Road, Suite SW3-200, Cupertino, California 95014. During the Class Period, Hitachi Chemical Co. America sold and distributed aluminum electrolytic capacitors to customers throughout the United States.

42. Defendants Hitachi Chemical Co., Ltd. and Hitachi Chemical Company America, Ltd. are together referred to herein as "Hitachi."

**7. Nichicon**

43. Defendant Nichicon Corporation is a Japanese corporation with its principal place of business located at Karasumadori Oike-agaru, Nakagyo-ku, Kyoto, 604-0845 Japan. During the Class Period and until the company's sale of its tantalum capacitor production operations to AVX Corporation in February 2013, Nichicon Corporation manufactured, sold, and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States. During the entire Class Period, Nichicon Corporation manufactured, sold and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

44. Defendant Nichicon (America) Corporation, an Illinois corporation, is a wholly owned subsidiary of Nichicon Corporation with its principal place of business located at 927 East State Parkway, Schaumburg, Illinois 60173. During the Class Period and until Nichicon Corporation's sale of its tantalum capacitor production operations to AVX Corporation in February 2013, Nichicon (America) Corporation sold, and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States. During the entire Class

Period, Nichicon (America) Corporation sold and distributed aluminum electrolytic capacitors to customers throughout the United States.

45. Defendants Nichicon Corporation and Nichicon (America) Corporation are together referred to herein as "Nichicon."

**8. AVX**

46. Defendant AVX Corporation is a Delaware Corporation with its principal place of business located at One AVX Boulevard, Fountain Inn, South Carolina 29644. It is a subsidiary of Kyocera Corporation, a Japanese corporation that owns approximately 72% of the outstanding common stock in AVX Corporation. In or about February 2013, AVX acquired Nichicon's tantalum capacitor production facilities in Japan and China, thereby expanding their global tantalum capacitor manufacturing operations. During the Class Period, AVX Corporation manufactured, sold and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

47. Defendant AVX Corporation is referred to herein as "AVX."

**9. Rubycon**

48. Defendant Rubycon Corporation is a Japanese corporation with its principal place of business located at 1938-1, Nishi-Minowa, Ina-City, Nagano 399-4593, Japan. During the Class Period, Rubycon Corporation manufactured, sold, and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

49. Defendant Rubycon America Inc., an Illinois corporation, is a wholly owned subsidiary of Rubycon Corporation with its principal place of business located at 4293 Lee Avenue, Gurnee, Illinois 60031. During the Class Period, Rubycon America Inc. sold and distributed aluminum electrolytic capacitors to customers throughout the United States.

50. Defendants Rubycon Corporation and Rubycon America Inc. are together referred to herein as "Rubycon."

**10. Elna**

51. Defendant Elna Co., Ltd., is a Japanese corporation with its principal place of business located at 3-8-11 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa Prefecture, 222-0033, Japan.

During the Class Period, Elna Co., Ltd., manufactured, sold, and distributed aluminum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

52. Defendant Elna America Inc., a California corporation, is a wholly owned subsidiary of Elna Co., Ltd., with its principal place of business located at 879 West 190th Street, Suite 100, Gardena, California 90248. During the Class Period, Elna America Inc. sold and distributed aluminum electrolytic capacitors to customers throughout the United States.

53. Defendants Elna Co., Ltd., and Elna America Inc. are together referred to herein as "Elna."

**11. Matsuo**

54. Defendant Matsuo Electric Co., Ltd., is a Japanese corporation with its principal place of business located at 3-5- Sennari-cho, Toyonaka-shi, Osaka 561-8558, Japan. During the Class Period, Matsuo Electric Co., Ltd., manufactured, sold and distributed aluminum and tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States. Matsuo Electric Co., Ltd., is referred to herein as "Matsuo."

**12. Toshin Kogyo**

55. Defendant Toshin Kogyo Co., Ltd., is a Japanese corporation with its principal place of business at Tsukasa Bldg. 2-15-4, Uchikanda Chiyoda-ku, Tokyo, Japan. During the Class Period, Toshin Kogyo Co., Ltd., manufactured, sold, and distributed aluminum and tantalum electrolytic capacitor products either directly or through its subsidiaries or affiliates throughout the United States. Toshin Kogyo Co., Ltd., is referred to herein as "Toshin Kogyo."

**13. Vishay**

56. Defendant Vishay Intertechnology, Inc., is a Delaware corporation with its principal place of business located at 63 Lancaster Avenue, Malvern, Pennsylvania 19355. During the Class Period, Vishay Intertechnology, Inc., manufactured, sold, and distributed aluminum and tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States. Vishay Intertechnology, Inc., is referred to herein as "Vishay."

**14. SEMCO**

57. Defendant Samsung Electro-Mechanics is a South Korean corporation with its principal place of business located at Gyeonggi-Do Suwon-Si Youngtong-Gu Maeyoung-Ro 150 (Maetan-Dong) 443-743, South Korea. It is a wholly-owned subsidiary of Samsung Group, a South Korean *chaebol* (*i.e.*, a business conglomerate). During the Class Period, Samsung Electro-Mechanics manufactured, sold, and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

58. Defendant Samsung Electro-Mechanics America, Inc., a California corporation, is a subsidiary of Samsung Electro-Mechanics with its principal place of business located at 3333 Michelson Drive, Suite 500, Irvine, California 92612. During the Class Period, Samsung Electro-Mechanics America, Inc., sold and distributed tantalum electrolytic capacitors to customers throughout the United States.

59. Defendants Samsung Electro-Mechanics and Samsung Electro-Mechanics America, Inc., are together referred to herein as "SEMCO."

**15. ROHM**

60. Defendant ROHM Co., Ltd., is a Japanese corporation with its principal place of business located at 21 Saiin Mizosaki-cho, Ukyo-ku, Kyoto 615-8585 Japan. During the Class Period, ROHM Co., Ltd. manufactured, sold, and distributed tantalum electrolytic capacitors either directly or through its subsidiaries, agents or affiliates to customers throughout the United States.

61. Defendant ROHM Semiconductor U.S.A., LLC, a Delaware limited liability corporation, is a subsidiary of ROHM Co., Ltd. with its principal place of business located at 2323 Owen Street, Suite 150, Santa Clara. California 95054. During the Class Period, ROHM Semiconductor U.S.A., LLC, sold and distributed tantalum electrolytic capacitors to customers throughout the United States.

62. Defendants ROHM Co., Ltd., and ROHM Semiconductor U.S.A., LLC, are together referred to herein as "ROHM."

63. Collectively, the Defendants named in paragraphs 22 to 62 are referred to herein as "Defendants."

## AGENTS AND CO-CONSPIRATORS

64. The anticompetitive and unlawful acts alleged against the Defendants in this class action complaint were authorized, ordered or performed by Defendants' respective officers, agents, employees, or representatives, while actively engaged in the management, direction, or control of Defendants' businesses or affairs.

65. Various persons and/or firms not named as Defendants herein may have participated as co-conspirators in the violations alleged herein and may have performed acts and made statements in furtherance thereof.

66. Each Defendant acted as the principal, agent or joint venturer of, or for other Defendants with respect to the acts, violations, and common course of conduct alleged herein. In particular, each Defendant headquartered outside the United States relied on their agents in the United States to implement, enforce and conceal the cartel through their global sales and marketing systems.

## CLASS ALLEGATIONS

67. Plaintiff brings this action on behalf of itself and as a class action pursuant to Federal Rules of Civil Procedure, Rule 23(a) and (b)(3), on behalf of a similarly situated Class, which is defined as follows:

> All persons and entities who purchased aluminum and/or tantalum electrolytic capacitors in the United States directly from one or more of Defendants, or from any predecessors, parents, subsidiaries, agents or affiliates thereof, at any time between January 1, 2005, and the present.

68. The Class definition encompasses those who purchased aluminum and/or tantalum electrolytic capacitors directly from any of the Defendants, even if the capacitors purchased were manufactured, sold or distributed by an affiliated entity, principal, agent or co-conspirator.

69. This definition of the Class specifically excludes the following persons or entities:

a. Any of the Defendants named herein;

b. Any of the Defendants' co-conspirators;

c. Any of Defendants' parent companies, subsidiaries, and affiliates;

d. Any of Defendants' officers, directors, management, employees, subsidiaries, affiliates or agents;

e. All governmental entities; and

f. The judges and chambers staff in this case, as well as any members of their immediate families.

70. Plaintiff does not know the exact number of Class members, because such information is in the exclusive control of Defendants. Plaintiff is informed and believe that, due to the nature of the trade and commerce involved, there are thousands of Class members geographically dispersed throughout the United States and elsewhere, such that joinder of all Class members in the prosecution of this action is impracticable.

71. Plaintiff's claims are typical of the claims of its fellow Class members because Plaintiff directly purchased aluminum and tantalum electrolytic capacitors from certain of the Defendants named herein, Plaintiff and all Class members were damaged by the same wrongful conduct of Defendants as alleged herein, and the relief sought herein is common to all members of the Class.

72. Numerous questions of law or fact common to the entire Class—including, but not limited to those identified below—arise from Defendants' anticompetitive and unlawful conduct:

a. Whether Defendants combined and/or conspired to fix, raise, maintain, or stabilize prices of aluminum and tantalum electrolytic capacitors sold at any time during the Class Period to purchasers in the United States;

b. Whether Defendants (1) shared among themselves nonpublic and competitively sensitive information pertaining to their respective pricing of the various makes and models of aluminum and tantalum electrolytic capacitors in their product portfolios, (2) concertedly fixed, raised, maintained or stabilized prices of aluminum and tantalum capacitors sold at any time during the Class Period to purchasers in the United States, (3) concertedly restricted the amount of aluminum and tantalum electrolytic capacitors they made available for sale and ultimately sold in the United States, and (4) committed other conduct in furtherance of the conspiracy alleged herein;

c. Whether Defendants' conduct caused the prices of aluminum and tantalum electrolytic capacitors sold at any time during the Class Period to purchasers in the

United States to be artificially fixed, raised, maintained or stabilized at noncompetitive prices;

d. Whether Plaintiff and the other members of the Class were injured by Defendants' conduct and, if so, the appropriate Class-wide measure of damages; and

e. Whether Plaintiff and other members of the Class are entitled to, among other things, injunctive relief, and, if so, the nature and extent of such relief.

73. These and other questions of law and fact are common to the Class and predominate over any questions affecting the Class members individually.

74. Plaintiff will fairly and adequately represent the interests of the Class because it directly purchased capacitors from one or more Defendants and it has no conflicts with any other members of the Class. Furthermore, Plaintiff has retained sophisticated and competent counsel who is experienced in prosecuting antitrust class actions, as well as other complex litigation.

75. Defendants have acted on grounds generally applicable to the Class, thereby making final injunctive relief appropriate with respect to the Class as a whole.

76. This class action is superior to alternatives, if any, for the fair and efficient adjudication of this controversy. Prosecution the claims pleaded herein as a class action will eliminate the possibility of repetitive litigation. There will be no material difficulty in the management of this action as a class action.

77. The prosecution of separate actions by individual Class members would create the risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for Defendants.

## TRADE AND COMMERCE

78. During the Class Period, each Defendant, directly or through one or more of their respective parents, subsidiaries, agents or affiliates, sold aluminum and/or tantalum electrolytic capacitors in the United States in a continuous and uninterrupted flow of interstate commerce and foreign commerce, including through and into this judicial district.

79. During the Class Period, Defendants collectively controlled the market for aluminum and tantalum electrolytic capacitors, both globally and also in the United States.

80. Defendants' business activities substantially affected interstate trade and commerce in

the United States and caused antitrust injury in the United States to Plaintiffs and members of the Class.

## FACTUAL ALLEGATIONS

### I. WHAT CAPACITORS DO AND HOW THEY WORK

81. Capacitors are electronic components that serve as one of the fundamental building blocks of all types of electrical circuits. Virtually every electrical circuit contains one or more capacitors. In the taxonomy of electrical components, capacitors are categorized as "passive" components. That is, capacitors do not require electrical power to operate. Instead, the physical properties of the materials that compose a passive component cause it to perform the task for which it is employed.

82. Generally, a capacitor is used in an electric circuit to store electrical charge. In this regard, it is distinguished from a battery in that a battery provides electrical charge to a circuit. Capacitors can store charges for long periods of time, even when removed from an electric circuit, and they can charge and discharge fully and instantaneously when required to do so. The amount of charge the capacitor can hold at a given voltage defines its capacitance.

83. In its basic form, a capacitor consists of two or more parallel conductive metal plates that are neither connected to nor touching each other, but are electrically separated by some form of insulating material. The insulating layer between a capacitor's plates is commonly called the dielectric. When a voltage is applied to the two plates, an electric field is created between them; positive charge will collect on one plate and negative charge on the other. The dielectric, a non-conductive material, does not permit the electric current to flow between the metal plates.

84. One way to visualize how a capacitor stores a charge is to imagine it as a municipal water tower hooked into a town's water supply. A water tower "stores" water pressure—when the water system pumps produce more water than a town needs, the excess is stored in the water tower. Then, at times of high demand, the excess water flows out of the tower to keep the pressure up. A capacitor stores electrical charge in the same way and can then release it when an electric circuit requires a charge to execute a task.

85. The most commonly used dielectrics used in capacitors are composed of ceramics,

aluminum, film or a rare metal called tantalum.

## II. TYPES OF CAPACITORS AND THEIR USES

86. Capacitors are usually distinguished from each other by whether they are electrolytic or electrostatic. Electrolytic capacitors are polarized, meaning that they have positive and negative leads that must be positioned the correct way in an electric circuit (*i.e.*, the positive lead, the cathode, must go to the positive side of the power source, and the negative lead, or anode, must go to the negative side). In contrast, electrostatic capacitors are not polarized (*i.e.*, they do not have a positive and negative leads) and therefore can be installed in either direction with respect to the flow of current.

87. Electrolytic capacitors have historically been considered to have higher capacitance than electrostatic capacitors. Because of their ability to hold larger charges, electrolytic capacitors have typically been used for power filtering, coupling or buffering in sophisticated electrical devices, such as televisions, computers, mobile phones, smart phones, tablets, and technology used by the medical, military industrial and aerospace industries.

88. Electrolytic and electrostatic capacitors are further distinguished within these two categories by the material from which their dielectrics are made. Electrolytic capacitors use aluminum or tantalum dielectrics, whereas ceramic capacitors are electrostatic. Flux capacitors are not part of this case.

### A. Electrolytic Capacitors

#### 1. Aluminum Capacitors

89. Aluminum electrolytic capacitors are made of two aluminum foils and a paper spacer soaked in electrolyte. One of the two aluminum foils is covered with an oxide layer serving as the dielectric, and that foil acts as the anode, while the uncoated foil acts as a cathode. The anode, electrolyte-soaked paper and cathode are stacked. The stack is then wound up, placed into a cylindrical enclosure usually made of aluminum and connected to an electric circuit through surface mounting on PCBs or attached by radial or axial pins.

90. The thinness of the aluminum oxide layer dielectric allows for relatively high capacitance, though an aluminum capacitor's capacitance can only increase by increasing the surface area covered by the dielectric. This requires additional stacking and winding of the foil layers, thus

increasing the capacitors' physical size. As a result, aluminum capacitors typically have lower volumetric efficiency than tantalum or certain types of ceramic capacitors. Further, aluminum capacitors have a higher propensity to leak the charge they hold as opposed to tantalum and certain types of ceramic capacitors.

91. Aluminum capacitors frequently are used in a variety of larger electronic devices, such as consumer audio and video devices, televisions, video game consoles, desktop and laptop computers, automotive electronics and power inverters.

**2. Tantalum Capacitors**

92. Tantalum capacitors exploit the tendency of tantalum metal to form a non-conductive protective oxide surface layer. They consist of tantalum powder sintered (*i.e.*, formed by high pressure) into a pellet shape—often called a "sponge"—as the negative plate of the capacitor, with the tantalum pentoxide forming on the pellet's surface serving as the dielectric, and an electrolytic solution or conductive solid serving as the positive plate. The dielectric layer thus can be very thin—thinner than the similar layer in, for instance, an aluminum electrolytic capacitor. Accordingly, a tantalum capacitor can have high capacitance in a small volume, and thus can have high volumetric efficiency. Tantalum capacitors historically have primarily been used in the computer end market, as well as the telecommunications end market.

93. Tantalum capacitors are, however, susceptible to short-circuiting or catastrophic thermal runaway failure and destruction by fire if subject to inconsistent voltage or voltage spikes, as such inconsistencies can tax and break down the capacitor's extremely thin dielectric.

94. Aside from the risk of catastrophic failure, tantalum capacitors are generally reliable. They have high resistance to leaking charge and have lower equivalent series resistance (*i.e.*, the speed at which electric charge is released from the capacitor) than aluminum electrolytic capacitors of the same capacitance rating. Accordingly, tantalum capacitors at times are used in complex electronic devices in which their small size and high capacitance are required, *e.g.*, mobile phones, smart phones, personal computers, tablet devices and automotive electronics.

95. The Defendant tantalum capacitor manufacturers have, at various times over the last decade, claimed that shortages of raw tantalum ore have caused the high prices for their capacitors and

the longer lead times for their production. Specifically, Defendants raised supply shock concerns to industry analysts and the investing public at various times in 1997, 2000, 2008, 2011 and 2012 based on concerns that certain tantalum mines were closing, other mines were not producing ore at the necessary levels, and the worry that tantalum's designation as a "conflict mineral" under Section 1502 of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank") would reduce their access to ore and/or would increase the market premium for conflict-free tantalum ore. Dodd-Frank requires that companies sourcing tantalum use independent private sector auditors to audit their supply chains and submit annual conflict minerals reports to the Securities and Exchange Commission.

96. The availability and cost of tantalum ore, along with the numerous steps required to manufacture tantalum capacitors, has been explained by Defendants and some industry analysts as the reason why these capacitors have historically been so expensive. As a result, the use of tantalum capacitors is usually limited to applications where the specific high capacitance they provide is required.

**B. Ceramic Electrostatic Capacitors**

97. A ceramic capacitor is a non-polarized capacitor made out of two or more alternating layers of ceramic and metal in which the ceramic material acts as the dielectric and the metal acts as the electrodes. The ceramic dielectric is a mixture of finely ground granules of paraelectric or ferroelectric materials, modified by mixed oxides that are necessary to achieve the capacitor's desired characteristics. The great plasticity of ceramic raw material enables manufacturers to produce an enormous diversity of styles, shapes and dimensions of capacitors. Because the thickness of the ceramic dielectric layer can be easily controlled and produced by the desired application voltage, ceramic capacitors are available with rated voltages up to the 30 kV range. Currently, the smallest discrete ceramic capacitor is about the physical size of the head of a pin, though advances in materials science and refinement of manufacturing processes may eventually permit fabrication of even smaller components.

98. The most prevalent form of ceramic capacitor is known as a multilayer ceramic capacitor ("MLCC"). Industry analysts report that for fiscal year 2014, MLCCs are estimated to account for approximately 95% of the global ceramic market in terms of volume and approximately 94% in terms of value. MLCCs are constructed with alternating layers that result in single capacitors connected in

parallel. This method, called "stacking" increases the component's capacitance because its surface area is increased by stacking up multiple layers of ceramic dielectric materials and metal electrode materials.

99. Technological and material advancements have permitted manufacturers to increase the number of layers in MLCCs while at the same time miniaturizing the components. The result of these improvements is that MLCCs tend to have higher greater volumetric efficiency than aluminum electrolytic capacitors, and can also compete with tantalum electrolytic capacitors in small form factor applications. Both aluminum and tantalum electrolytic capacitors, however, must increase in physical size to increase capacitance. The capacitance of aluminum electrolytic capacitors can be increased only through tightly winding aluminum metal foil, thereby increasing the surface area as well as the total size of the component. In similar fashion, capacitance in tantalum electrolytic capacitors is increased only by expanding the size of the tantalum pellet in the capacitor, which in turn increases the total size of the capacitor.

100. Currently, MLCCs typically cost only a fraction of aluminum or tantalum electrolytic capacitors. Ceramics, however, are not an easy cure for purchasers seeking to save costs on the electronic devices they produce that require high capacitance in a small form factor, *e.g.*, mobile phones, smart phones and tablet computers. Because electric circuits are designed to accommodate specific types of active and passive components with specific technical and operational characteristics, ceramic capacitors cannot immediately be integrated into PCBs or other types of circuits that require either aluminum or tantalum electrolytic capacitors. Stated differently, capacitors with differing capacitance, dielectric and form factor are not interchangeable with each other. Redesigning and reengineering a product's electrical circuits is therefore required to accommodate any changes to the electrical components contained within them. This is a lengthy, resource-intensive effort that requires a product manufacturer essentially to redesign a product and change and redefine its supply chain resources, all while still working to meet ongoing demand for its finished products.

## III. THE MARKET CONDITIONS IN WHICH DEFENDANTS' CONSPIRACY ORIGINATED

101. Generally, capacitors are purchased by one of three categories of purchasers: (1) original

equipment manufacturers ("OEMs") who install capacitors directly into their products; (2) electronic manufacturing service providers ("EMS Providers") who manufacture PCBs and other electric circuit products that contain capacitors and which are integrated into end-use products manufactured by others; and (3) third-party electronics distributors that sell capacitors to various consumers.

102. The demand for capacitors over the last decade has been largely tied to the demand for consumer electronics, which currently accounts for approximately 90% of global unit demand. The computer end-use market segment historically has accounted for a significant portion of global capacitor consumption, but that segment has experienced decreasing sales of high-passive component content laptops and desktops in recent years. Industry analysts have indicated that declining demand for these products has negatively impacted the demand for tantalum and aluminum capacitors, which have historically derived close to 50% of their revenues from the computer market. In addition, the consumer audio-video segment, which has also historically accounted for a significant portion of global capacitor consumption, has also faced significant decreasing sales over the last decade due to portable music devices, tablets and smart phones meeting modern consumers' audio-visual needs. The fall off of the audio-visual market had a significant impact on the demand for aluminum electrolytic capacitors.

103. Over the past decade, ceramic electrostatic capacitors have outperformed the other primary capacitor dielectrics (specifically the tantalum and aluminum electrolytics) in terms of volume of products globally consumed and the value of that demand. In terms of volume, industry data shows that unit consumption of ceramic capacitors over the last decade has increased 7%, from approximately 84% for fiscal year 2004 to an estimated 91% for 2014. During the same period, consumption of tantalum electrolytic capacitors dropped from approximately 2.5% of global volume for fiscal year 2004 to an estimated 1.1% for 2014, and consumption of aluminum electrolytic capacitors dropped from approximately 9.9% for fiscal year 2004 to an estimated 6.8% for fiscal year 2014.

104. The value of the tantalum electrolytic capacitors sold over the last decade has declined from approximately 12.6% of the global value for fiscal year 2004 to an estimated 10.4% for 2014, while the global value of aluminum electrolytic capacitors has declined from approximately 33.1% for fiscal year 2004 to an estimated 22.6% for 2014.

105. The North and South American market for capacitors accounts for approximately $2.2

billion for fiscal year 2014, or roughly 12 percent of the global market. Ceramics account for approximately 47% of capacitor consumption in the Americas, followed by aluminum capacitors with approximately 17%, and tantalum capacitors with 14%.

106. Aluminum and tantalum electrolytic capacitor manufacturers have faced stagnant and/or reduced demand over the last decade.

107. With specific regard to aluminum electrolytic capacitors, purchasers began to find them too volumetrically inefficient to be useful in many electronic devices sold today. Historically, most electronic devices have been larger physically than they are today. In the past, the larger footprint required by aluminum capacitors on PCBs found in devices such as televisions, stereo equipment, and personal computers was not problematic.

108. With the development of technologies and processes that allowed manufacturers to miniaturize certain types of capacitors while, at the same time, increasing their volumetric efficiency, manufacturers of electronic devices began to design and produce smaller, more portable and more functionally integrated products that met, if not surpassed, the complexity of predecessor devices that used aluminum capacitors. For many consumer-focused devices—*e.g.*, smart phones, tablet computers, laptop computers, personal navigation devices—smaller capacitors with greater capacitance had to be used to execute the various complex tasks for which the devices were employed. Because many of these new electronic devices have essentially come to replace the devices that historically used bulky aluminum capacitors—*e.g.*, tablets, smart phones and personal music devices replacing televisions, personal computers and stereos—the market for aluminum electrolytic capacitors had grown relatively stagnant as of late 2004, but noticeably declined starting in late 2007 to early 2008.

109. With specific regard to tantalum electrolytic capacitors, demand declined over the last decade in large part because they were often unavailable and, as a result, expensive. Though tantalum electrolytic capacitors have a high volumetric efficiency and other operational characteristics often desired by OEMs and EMS Providers for use in small form factor applications, many purchasers over time came to expect that their demand for tantalum capacitors could not economically be met.

110. Manufacturing tantalum electrolytic capacitors is a labor- and resource-intensive process. Industry sources have noted there are over 70 steps required to be taken to manufacture a

tantalum electrolytic capacitor. The manufacturing process for these capacitors is completely different from that required for making aluminum electrolytic or even ceramic capacitors, and it requires different raw materials, supply chains and fabrication operations. Further, the limited availability of tantalum ore, especially when compared to availability of raw materials required to make other capacitors, has been claimed by tantalum capacitor manufacturers as a cause for limited production and high costs.

111. Many capacitor purchasers make products that specifically require tantalum electrolytic capacitors and the electrical circuits incorporated in these products cannot be redesigned and reengineered to use any other capacitors. As a result, these purchasers have no choice but to weather the availability and cost issues attendant to using tantalum capacitors. Other purchaser's products, however, are not solely dependent on the specific performance tantalum capacitors provide the electric circuits they employ. In those instances, purchasers over time undertook the lengthy and resource-intensive effort to redesign and reengineer the electric circuits they employ in their manufactured products to incorporate more available and affordable capacitors containing dielectrics other than tantalum. This gradual—and therefore not immediate—process accounts for much of the decrease in demand for tantalum electrolytic capacitors over at least the last decade.

112. The decline in demand for both aluminum and tantalum electrolytic capacitors began in early 2000s, though it became more pronounced when the global economy crashed starting in late 2007. The global financial crisis caused consumer demand at all levels—globally and domestically—to fall significantly. According to industry data, consumption for capacitors dropped nearly 10% globally between fiscal year 2008 and 2009. Though economic stimulus packages orchestrated by the United States, China and EU countries caused some growth in the volume of capacitors consumed in fiscal year 2011, global consumption still dropped year over year approximately 7% in 2012 and 14% in 2013.

113. By the close of fiscal year 2008, global consumption for aluminum electrolytic capacitors had already declined approximately 14% from 2005. This decline has continued to the present day, with consumption in 2014 estimated to be approximately 30% lower than it was in 2005. Similarly, by the close of fiscal year 2008, global consumption for tantalum capacitors dropped approximately 37% from 2005, and with consumption in 2014 estimated to be approximately 53% less than it was in 2005.

## IV. DEFENDANTS' COLLUSIVE ANTICOMPETITIVE PRACTICES

114. In the context of this marked decline in demand for aluminum and tantalum electrolytic capacitors since at least the early 2000s, any price competition among the Defendants for the mutually interchangeable and substitutable components they produce would be sure to reduce any profitability they could hope to reap from these product markets. Specifically, given the significant costs related to running Defendants' respective capacitor manufacturing operations, keeping abreast of technological change and innovation, as well as the ongoing variable costs of raw materials, labor and distribution chain operations, Defendants' profit margins on aluminum and tantalum electrolytic capacitors would, by the operation of basic principles of economics, grow thinner if they were required to compete against each other for sales.

115. At least prior to the beginning of 2005, Defendants each were aware of the significant market share each of them held, both individually and collectively, in the mature, yet declining market for aluminum and tantalum electrolytic capacitors. Relatedly, Defendants each were also aware of the inability of capacitor manufacturers with smaller market share to successfully compete against them and meet market demand due to their evident capacity and resource constraints.

116. Additionally, at least prior to the beginning of 2005, Defendants were aware that their aluminum and tantalum electrolytic capacitors products of like capacitance, dielectric and form factor are in most instances mutually interchangeable for each other. For example, one manufacturer's aluminum electrolytic capacitors of a given capacitance and form factor often can be substituted for another manufacturer's aluminum capacitors with the same capacitance and form factors; the same goes for tantalum electrolytic capacitors produced by different manufacturers with the same capacitance and form factors. Aluminum electrolytic capacitors, however, are not mutually interchangeable with tantalum electrolytic capacitors, and vice versa.

117. Further, Defendants were also aware of how fundamentally necessary capacitors are to the function of electric circuits, and how other types of passive electrical components (*e.g.*, inductors, resistors) cannot serve as a substitute for or a functional equivalent to an aluminum or tantalum electrolytic capacitor.

118. Finally, Defendants were aware that all types of purchasers—OEMs, EMS Providers

and third-party distributors—were almost always committed to inflexible production or delivery deadlines to their respective customers, and therefore would incur any price increases on the capacitors they required to avoid the usually greater cost of production delays or customer dissatisfaction.

119. In their collective and individual consideration of the market conditions, Defendants agreed to operate as a cartel to foreclose competition and protect each of its members from price competition. By forming this cartel, Defendants intended to wring as much profitability out of the aluminum and tantalum electrolytic capacitors market as possible before their product portfolios for these capacitors become technologically obsolete or became consigned to the comparatively unprofitable niche market.

120. Defendants together reached an agreement to concertedly fix prices and reduce output on aluminum and tantalum electrolytic capacitors some time before, and in any event no later than, January 1, 2005. This agreement was reached through both oral and written communication among executives, officers, sales representatives and employees of the Defendant companies. The exchanges of these communications occurred in person, through electronic or paper correspondence, text messaging or telephonic or video communications in the period preceding the beginning of the Class Period.

121. The specific date upon which Defendants' cartel and their collusive behavior commenced (assuming it is even capable of determination given the nature of secret conspiracies) is information known only to Defendants. Plaintiff will amend this class action complaint upon discovering sufficient evidence pointing to a specific start date for Defendants' conspiracy.

122. Defendants intended to restrain trade in aluminum and tantalum electrolytic capacitors primarily in two ways.

123. First, Defendants agreed to end price competition among themselves as to their respective aluminum and tantalum electrolytic capacitors product portfolios by concertedly fixing, raising, maintaining or stabilizing the prices for these products, thereby removing the prices offered to purchasers from a competitive market.

124. To achieve their collective goal of artificially setting the price for their respective aluminum and tantalum electrolytic capacitor product portfolios, each of the Defendants shared with

each other, either through correspondence or during in-person meetings, confidential and competitively sensitive information pertaining to their product pricing. By way of illustration and not limitation, Defendants shared, among other things, information pertaining to the fixed and variable costs that impacted their product pricing. With knowledge of each other's competitively sensitive information, Defendants were able to collectively determine and coordinate the pricing for the mutually interchangeable products in their respective capacitor portfolios.

125. Defendants were able to maintain the concerted pricing on their aluminum and tantalum electrolytic capacitors through regular interaction with and communication among members of the cartel on the topic of pricing, and by publishing pricing information and cross-reference materials (*i.e.*, charts or other materials that identify which capacitors of a given Defendant are mutually interchangeable for capacitors of another Defendant) and sharing them with both the public and Defendants' largest third-party authorized distributors, most of whom distribute capacitors for a significant number of Defendants.

126. If at any time any of the Defendants priced any of its portfolio products outside the cartel's coordinated pricing, the Defendant would become aware either through notice from its fellow cartel members or from its largest third party authorized distributors. The pricing for the product at issue would then adjust back to the price determined by the cartel's members.

127. Defendants' concerted pricing has gone unnoticed to date for many reasons, including, by way of example and without limitation: (1) the sheer number and variety of aluminum and tantalum electrolytic capacitors in Defendants' respective product portfolios makes it difficult for purchasers to track market-wide movement in pricing, especially when purchasers are primarily interested in only products with a specific capacitance, dielectric and form factor; (2) pricing for these capacitors changes frequently; and (3) noncompetitive pricing is masked at times by high volume sales of these commoditized products, in which bulk purchasers may receive volume discounts.

128. Aside from concertedly setting non-competitive prices for their aluminum prices, Defendants also agreed to concertedly quote product lead times to purchasers. This permitted Defendants to meter out the supply of their mutually interchangeable products available on the market, thereby keeping demand high and, at times, unmet.

129. Defendants agreed to restrain their output in an effort to curb the practice of certain purchasers who would buy large lots of products from Defendants when prices appeared to be low, but would abstain when prices were higher. Defendants intended their practice of quoting similar production lead times for their mutually interchangeable products to smooth out the inconsistent volume of purchases by these purchasers. At the same time, Defendants intended this practice to complement their efforts to artificially maintain a non-competitive price for their products.

130. To achieve the cartel's goal of quoting uniform production lead times to purchasers, Defendants regularly interacted and communicated with other Defendants in the cartel on the topic of product lead times.

131. Defendants regularly provided to purchasers and the public pretextual excuses for the increase of production lead times, such as problems obtaining raw materials (*e.g.*, tantalum ore) necessary for production, shipping delays, and production delays caused by natural disasters (*e.g.*, the 2011 Tohoku earthquake and tsunami, typhoons in Asia, flooding in Thailand and other countries where Defendants' capacitor manufacturing facilities are located). Because the justifications Defendants provided for long production lead times were credible, customers were lulled into believing them, despite Defendants' conspiracy. Defendants concertedly coordinated to lengthen these production lead times unjustifiably in order to foster the cartel's scheme to maintain noncompetitive prices for the Defendants' aluminum and tantalum electrolytic capacitors.

132. The effects of Defendants' concerted and collusive actions were significant and, in fact, were counter to what the market would expect given the comparative and continual decline in demand for aluminum and tantalum electrolytic capacitors that began in the early 2000s. Notably, industry and government data suggests that per unit prices for aluminum and tantalum electrolytic capacitors began to stabilize in 2005.

133. From 2005 to present, industry data shows that per unit prices for tantalum electrolytic capacitors have increased approximately $0.008, or $8.82 per thousand.

134. In 2005, aluminum electrolytic capacitors began to stop their price decline from approximately $55.06 per thousand in 2003. In 2005, industry data shows that the price per unit for aluminum electrolytic capacitors was $46.76 per thousand units, and their per unit price hovered

between approximately $40.00 and $46.00 per thousand until 2013. In effect, Defendants' conspiracy permitted manufacturers of aluminum electrolytic capacitors (the Defendants herein) to slow the market-driven decline in price for their products, and to fix prices at supracompetitive levels.

## V. INDUSTRY CHARACTERISTICS INDICATING AND FACILITATING DEFENDANTS' CONSPIRACY TO RESTRAIN TRADE IN THE ALUMINUM AND TANTALUM ELECTROLYTIC CAPACITOR MARKET

135. For at least as long as the Class Period, the aluminum and tantalum electrolytic capacitor industry has demonstrated numerous characteristics that have served to facilitate Defendants' conspiracy. By way of illustration and not limitation, the industry has exhibited (1) market concentration among a limited number of participants; (2) high barriers to entry for new market participants; (3) mutual interchangeability of Defendants' products; (4) inelasticity of demand; (5) commoditization; (6) weak demand in a mature market; (7) a large number of purchasers with limited purchasing power; and (8) ease of information sharing among Defendants.

### A. Market Concentration

136. Despite the ascendency of ceramic capacitors as the dominant product in the global capacitors market, the market for aluminum and tantalum electrolytic capacitors remains quite significant. In 2004, the global volume of aluminum and tantalum electrolytic capacitors consumed was approximately 12% of the market. Consumption for 2014 is estimated to be approximately 8% of global volume. The revenues for these sales—given the higher per unit price of both aluminum and tantalum electrolytic capacitors relative to ceramic capacitors—approximate an estimated $6 billion for fiscal year 2014 alone. Industry data show that aluminum and tantalum capacitors together currently account for approximately 31% of North and South American capacitor consumption (most of which are presumably consumed in North America), which is valued at approximately $680 million.

137. Market power in the aluminum and tantalum electrolytic manufacturing industry itself is highly concentrated—a fact that is conducive to the type of collusive activity alleged herein.

138. Though there are a relatively large number of companies that produce aluminum electrolytic capacitors and sell them into the global and U.S. markets, significant market power is concentrated in the Defendants. In all, industry data show that the 13 largest manufacturers of aluminum electrolytic capacitors account for approximately 92% of the market's current revenue.

Specifically, industry analysts report that Defendants Nippon Chemi-Con, Nichicon, Rubycon, Panasonic, AVX and Elna currently together hold approximately 65% of the global market. Adding in the smaller market shares of Defendants Hitachi, Matsuo and Toshin Kogyo, Defendants' collective share in the aluminum electrolytic capacitors market is approximately 70%.

139. Given the relatively small market share (*i.e.*, mostly 3% or less) and capacity constraints of the other (non-Defendant) companies selling products in the global aluminum electrolytic capacitors market, the Defendants' concerted actions have impacted pricing and output in the aluminum capacitor market during the Class Period. There was not a reasonable threat that manufacturers who were not members of the cartel could undercut the cartel's concerted pricing and meet all or a significant part of market demand for mutually interchangeable aluminum capacitors at more competitive prices.

140. Industry data show that the seven largest manufacturers of tantalum electrolytic capacitors account for approximately 95% of the global market's current revenue. Industry analysts report that Defendants KEMET-NEC Tokin, Panasonic, AVX, Vishay SEMCO and ROHM currently together hold approximately 90% of the global market.

141. Given the relatively small market share (*i.e.*, mostly 3% or less) and capacity constraints of the other companies selling products in the global electrolytic capacitors market, the Defendants' concerted actions have impacted pricing and output in the tantalum capacitor market during the Class Period. There was not a reasonable threat that manufacturers who were not included in the cartel could undercut the cartel's concerted pricing and meet all or a significant part of market demand for mutually interchangeable capacitors at more competitive prices.

**B. High Barriers to Entry**

142. In a market free of price fixing, higher profits draw in other market participants who wish to capture a share of profits. Where members of a cartel conspire to raise prices in a market, those higher prices generate higher profits for the cartel's members. In industries characterized by substantial barriers to entry, however, cartel members may be able to raise prices to supracompetitive levels and reap high levels of profits.

143. Companies seeking to manufacture and sell aluminum and tantalum electrolytic capacitors without having any prior involvement in the capacitors market face various significant

barriers to their entry.

144. The electrolytic capacitors manufacturing industry is a mature one dominated by established corporations, each having diverse product portfolios, multinational operations and global market reach. These companies have significant experience in the global capacitors industry and established reputations with both sellers of raw materials and purchasers of finished capacitors. These companies typically have access to significant financial resources that not only allow them to commit the capital necessary to bring online new fabrication operations and facilities or to expand/retrofit existing ones to meet market demand and adjust to technological changes, but also to establish and secure necessary supply chain commitments for all raw materials they require. Defendants are all established manufacturers in the electrolytic capacitors industry.

145. For a prospective capacitor manufacturer, setting up competitive manufacturing operations and supply chain operations is a significant financial and logistic hurdle to market entry. A new entrant seeking to build electrolytic capacitors fabrication operations and facilities faces not only the sizeable cost of building fabrication plants, but also the costs of acquiring the necessary production technology, hiring and retaining skilled and knowledgeable manpower, and securing the raw materials and supply chain commitments necessary to manufacture competitive products. These costs would exceed hundreds of millions of dollars. Many of the Defendant manufacturers have developed internal processing capabilities for raw materials and have established relationships with raw materials producers that all but insure that their requirements will be met.

146. These hurdles, however, are not the only barriers a new market entrant faces. For a new market entrant consistently to products and sell competitively and to create and sustain a diverse product portfolio, it must invest in substantial research and development operations. Additionally, the new entrant must create and maintain global sales and marketing operations so that its products can be attractive to capacitor purchasers and disrupt their existing relationships with the established electrolytic capacitor manufacturers.

147. Ultimately, to be competitive, a new market entrant has to commit to significant financial and operational undertakings to establish itself in an industry where—in the absence of any price manipulation—profit margins are not large and economies of scale must be achieved in order to

reach profitability. Moreover, because the global demand for capacitors has shifted significantly in favor of ceramics over the last decade, a new market entrant's commitment of the necessary financing and resources to establish itself in the electrolytic capacitors market would be fraught with risk.

148. The fact that no new manufacturers have begun producing exclusively aluminum or tantalum electrolytic capacitors in well over a decade—other than through acquisition of companies or business units already producing specific electrolytic capacitor products—strongly suggests that the electrolytic capacitors market is foreclosed to new competition.

**C. Mutual Interchangeability of Defendants' Electrolytic Capacitors**

149. As noted earlier, capacitors of like capacitance, dielectric, and form factor are mutually interchangeable. A specific aluminum or tantalum electrolytic capacitor manufactured by one of the Defendants therefore can be exchanged for a product of another Defendant with the same technical and operational specifications. There are no other defining physical characteristics that differentiate Defendants' various aluminum or tantalum electrolytic capacitor products from each other.

150. Defendants are aware of the fungibility of their specific products. Indeed, Defendants have made product cross-reference materials available through their respective web sites, product catalogs, and/or other materials distributed to capacitor purchasers. These cross-reference materials identify a specific Defendants' capacitor product by either product number or technical and operational specifications, and it identifies specific mutually interchangeable products manufactured by competitor Defendants.

151. In addition to many of Defendants' products being directly interchangeable, products with differing capacitance, dielectric and form factor—depending on circuit design and certain technical requirements—can be interchangeable for each other. There are a number of general rules recognized in the capacitors industry that govern such interchangeability, for example: (1) using a capacitor with a higher capacitance value than the circuit requires is sometimes acceptable; (2) a capacitor with a better capacitance tolerance can replace a looser tolerance component; (3) a capacitor with a higher voltage rating may be used in place of, or as a substitute for, a lower voltage rated component; (4) a physically smaller capacitor may be acceptable if lead spacing is the same and electrical specifications differences are acceptable; (5) a capacitor with a better temperature rating can

replace a lower temperature rated component; (6) a capacitor with a more stable temperature coefficient can replace a component with a less stable temperature coefficient; (7) a capacitor with a lower dissipation factor can replace one with a higher dissipation factor; (8) a capacitor with a lower ESR can replace one with a higher ESR; (9) a capacitor with a higher ripple current rating can replace one with a lower ripple current rating; and (10) a capacitor with a lower leakage current rating can replace one with a higher leakage current rating.

152. Because purchasers are aware of the mutual interchangeability of Defendants' respective capacitor products of like capacitance, dielectric and form factor, along with the possibility that certain products that are not directly fungible can still replace each other, Defendants present purchasers a broad portfolio of product choices that can meet their needs. Accordingly, but for Defendants' non-competitive maintenance of pricing, price would be the primary means of competition among Defendants in the aluminum and tantalum electrolytic capacitor market.

**D. Inelastic Demand**

153. Inelastic demand means that increases in price result in limited declines in quantity sold in the market. For a cartel to profit from raising prices above competitive levels, demand must be inelastic at competitive prices such that cartel members are able to raise prices without triggering a decline in sales revenue that would make the price increase unprofitable. In simple terms, demand is inelastic when the loss in volume arising from a price increase is small relative to the magnitude of the increase in price, allowing higher prices to increase revenues and profits.

154. The demand for aluminum and tantalum electrolytic capacitors is inelastic. When there are few or no substitutes for a product, purchasers have little choice but to pay higher prices in order to produce their product. As set forth above, capacitors serve as a fundamental component in the electric circuits employed to make functional a wide variety of products within different end-markets. No other type of passive electrical component (*e.g.*, inductors, resistors) can serve as a substitute or a functional equivalent to a capacitor in an electric circuit. Accordingly, a purchaser that is either an OEM or an EMS Provider simply cannot design an electric circuit to bypass its need for a capacitor with a certain capacitance, dielectric and form factor.

155. Capacitors are also often a comparatively inexpensive cost input in electrical devices, so

a purchaser facing higher prices for capacitors would generally pay that increased price rather than forgo its opportunity to sell the device that includes the capacitors.

156. Though the specific capacitors that Defendants manufacture are either mutually interchangeable for each other when a specific electric circuit is designed to incorporate them, this does not demonstrate price elasticity. Rather, this fact affirms the ubiquitous need for capacitance in electric circuits and the inability of purchasers of capacitors to forgo their use in their products or find a cost-effective, functional substitute for them.

157. Indeed, demand inelasticity for capacitors is particularly acute when a given electric circuit or an electronic device requires not just a capacitor, but one with a specific capacitance, dielectric and form factor. In that instance, a purchaser has no choice but to buy a specific capacitor with the required technical and operational characteristics.

**E. Commoditization**

158. When a product is characterized as a commodity, market participants typically compete on the basis of price rather than other attributes such as product quality or customer service. Where competition occurs principally on the basis of price, it is easier to implement and monitor a cartel because price is more often objectively measurable and observable than non-price factors such as service.

159. Because aluminum and tantalum electrolytic capacitors are mass-produced products generally sold by Defendants in lots of 1,000 pieces that have relatively standardized technical and operational characteristics for the various mutually interchangeable models manufactured and sold by the Defendants, the electrolytic capacitor products at issue are largely commoditized.

160. Defendants recognize that their aluminum and tantalum capacitors are commoditized products. Based on the type of electrolytic capacitor they produce, Defendants face relatively similar raw materials and production costs. Accordingly, even without Defendants' sharing of confidential and competitively sensitive information as part of their price-fixing conspiracy, Defendants would have approximate knowledge of each other's costs and the bases for their respective prices. However, by having access to their co-conspirators' pricing information, Defendants can more easily implement their scheme to maintain noncompetitive prices for aluminum and tantalum electrolytic capacitors.

**F. Weak Demand**

161. Static or declining demand is one factor which makes the formation of a collusive arrangement more likely. Under normal business conditions, when faced with weak demand conditions, firms will attempt to increase sales by taking market share from competitors by decreasing prices. For this reason, firms faced with static or declining demand have a greater incentive to collude to avoid price competition with competitors in order to ballast their declining business.

162. As alleged herein, the overall demand for aluminum and tantalum capacitors has declined significantly since the early 2000s. Demand for aluminum and tantalum electrolytic capacitors is closely tied to the demand for consumer electronics. Over the past decade, declining sales of desktop computers and television sets have weakened demand for passive electronic components and capacitors in particular. In 2012, for example, sales of televisions and desktop computers declined roughly 10% from the previous year, whereas demand for laptop computers declined only 2%. The impact of this decline in consumer electronic demand on capacitor demand is evident in the static growth observed by the overall market and the negative growth trends reported in some segments by certain Defendants.

163. For instance, Nichicon's 2013 Annual Report states that the company's 21.7% decrease in capacitor sales "is attributed to declining demand for digital home electronics and inverter equipment." Similarly, Taiyo Yuden's 2013 Annual Report notes that "[t]he electronics industry, to which [TaiyoYuden] belongs, has seen continued growth from the smartphone and tablet device markets. In contrast to this, the PC and television markets remain sluggish. Overall this has caused weaker demand for electronic components." AVX Corporation made the same observation in its 2013 Annual Report stating, "[o]verall sales prices for our commodity component products declined during 2013."

**G. Large Number of Purchasers With Limited Purchasing Power**

164. In a market with many purchasers, each of whom forms a small share of the total marketplace, there is less incentive for cartel members to cheat on collusive pricing arrangements, since each potential sale is small while the risk of disrupting the collusive pricing agreement carries large penalties.

165. In the market for aluminum and tantalum electrolytic capacitors, Defendants each have historically sold and currently sell to a wide number of purchasers around the globe, the vast majority of

whom during the Class Period make up no more than 10% of each Defendant's respective annual net sales, year over year.

166. Defendants therefore had many reasons during the Class Period to coordinate pricing and market supply availability with each other within the auspices of their cartel.

167. Defendants concertedly priced their respective capacitor products during the Class Period, and also provided lockstep quotation of production lead times to purchasers.

**H. Ease of Information Sharing Among Defendants**

168. Because of their common membership in trade associations and interrelated business relationships between certain executives, officers, and employees of the Defendants, there were many opportunities both before and during the Class Period for Defendants to collude by discussing competitive information regarding their respective aluminum and tantalum electrolytic capacitor products. The ease of communication was facilitated by the use of meetings, telephone conversations, e-mail messages, written correspondence and text messaging. Defendants took advantage of these opportunities to discuss, and agree upon, their pricing for the various types of capacitors they produce.

169. Industry trade associations make a market more susceptible to collusive behavior because they can provide a pretext under which conspirators can exchange sensitive company information such as pricing and market allocation.

170. A number of industry trade associations exist in the capacitor industry. One of the largest trade associations for the industry, the Electronic Components Industry Association ("ECIA"), claims Defendants AVX, KEMET and Panasonic as members. According the ECIA, its members are granted access to "industry peers and executive networking," and events where they can be "face-to-face with leaders of the authorized electronic components industry." Likewise, the European Passive Components Industry Association provides similar networking opportunities, and it includes Defendants Nichicon, AVX and Panasonic among its members.

171. Aside from these formalized means of exchanging information among each other, Defendants have among them numerous informal links between their former and current colleagues, co-venturers, or partners employed by other Defendant companies. These links provided them the means and opportunity to exchange competitively sensitive information. Despite the billions of dollars

of revenue generated by the capacitors industry worldwide, it is still a narrow segment of the overall electronic components industry, and the key decision-makers for the major producers had personal access to each other both directly and indirectly.

172. Further, Defendants can procure relatively detailed competitive information from industry analysts. The capacitor industry is analyzed by a limited number of market research firms that deal in detailed industry data. Each of these firms offers, for a fee, market data on pricing, supply, and other key indicators of market activity as well as market projections. The capacity and pricing information procured by these analysts is provided directly from industry participants, including certain of Defendants. Given the limited number of analysts that cover the capacitors industry, those that do are often provided highly detailed information and direct access to decision-makers for the capacitors manufacturers, including Defendants.

## VI. CURRENT U.S. AND INTERNATIONAL ANTITRUST INVESTIGATIONS INTO ANTICOMPETITIVE PRACTICES IN THE CAPACITORS INDUSTRY

173. Defendants' conspiracy to artificially fix, raise, maintain or stabilize prices for aluminum and tantalum electrolytic capacitors, as well as to restrict the output of such capacitors, has only recently been discovered by law enforcement and regulatory authorities both in the United States and throughout Asia.

174. In April 2014, the Antitrust Division of the United States Department of Justice ("DOJ") confirmed to industry sources that the government has opened an investigation into price fixing in the capacitors industry, and sources report that this investigation is being conducted out by the United States Attorney's Office for the Northern District of California.

175. Media and industry sources have reported that this investigation has been ongoing for some time, and that the DOJ has been coordinating its efforts to investigate the capacitors industry with the People's Republic of China's National Development and Reform Commission ("NDRC"), an agency entrusted with regulating price-related anticompetitive activity by the Chinese State Council. During March 2014, the NDRC conducted several raids on Chinese operations of Japanese capacitors manufacturers.

176. Media and industry sources indicate that a member of the cartel—believed to be

Panasonic, a Defendant in this action—has approached U.S. and Chinese authorities to self-report its involvement in the conspiracy and to request prosecutorial leniency and amnesty.

177. The U.S. Antitrust Criminal Penalty Enhancement and Reform Act ("ACPERA") provides leniency benefits for a participant in a price-fixing conspiracy that voluntarily discloses its conduct to the Department of Justice ("DOJ"). A November 19, 2008 presentation on the DOJ's website explains that "[a conditional leniency] applicant must admit its participation in a criminal antitrust violation involving price fixing…before it will receive a conditional leniency letter." One of the leniency benefits for a conspirator that is accepted into the ACPERA program is that the applicant is not charged with a criminal offense and is not required to plead guilty to criminal charges.

178. By applying for leniency through ACPERA, the cartel member believed to be Panasonic must have admitted to price fixing in the capacitors industry.

179. On or about July 2, 2014, the NDRC publicly confirmed its investigation into the capacitors industry though a report by published in the China Price Supervision and Antitrust Journal and written by Xu Kunlin, Director-General of the NDRC's Price Supervision and Antimonopoly Bureau. In this report, Xu revealed that one Japanese capacitor company self-reported its cartel activity in March 2014, and that this company and other Japanese capacitor manufacturers held regular conferences to exchange market information related to their products. Media and industry sources have quoted Xu as saying that the Japanese manufacturer seeking amnesty would receive complete leniency.

180. The United States and the PRC, however, are not the only countries investigating price fixing in the capacitors industry.

181. Media and industry sources report that the Japan Fair Trade Commission ("JFTC") has been investigating price fixing of aluminum and tantalum electrolytic capacitors for some time now. On or about June 24, 2014, the JFTC conducted raids of approximately eight capacitors manufacturers believed to be members of the cartel, including Panasonic, NEC Tokin, Hitachi Chemical, Nichicon and Nippon Chemi-Con. According to media reports citing sources close to the JFTC's investigation, sales executives and other officials from the raided companies discussed and decided on price increases for capacitors for at least several years. It is reported that the JFTC suspects that the raided companies

formed a cartel in order to boost profits after they had suffered financial setbacks following the global financial crisis stemming from the collapse of Lehman Brothers in 2008 and the 2011 Tohoku earthquake and tsunami in Eastern Japan.

182. Since the beginning of 2014, investigations into the capacitors industry also have been opened by the South Korean Fair Trade Commission, the Taiwanese Fair Trade Commission, and the European Commission's competition authority.

183. To date, few of the Defendants have commented about their being subject to these raids. Defendant Panasonic has confirmed that it was raided by both the JFTC and South Korean authorities.

184. Defendant Taiyo Yuden has admitted to having been raided by the NDRC and has stated that it is cooperating with Chinese authorities.

185. Defendant NEC Tokin has confirmed that it has been contacted or raided by American, Chinese and European authorities and has stated that it is cooperating with authorities.

186. Toshin Kogyo has confirmed that it has been contacted by Japanese, Chinese and Taiwanese authorities.

187. For some of Defendants—especially Panasonic and Sanyo—these investigations are not the first time they have been scrutinized by law enforcement and competition authorities for anticompetitive behavior. These Defendants have a documented history of cartel behavior and antitrust price-fixing recidivism.

188. Both Panasonic and Sanyo have been investigated by the DOJ in the last several years for participating in price-fixing conspiracies involving automotive parts and lithium ion battery cells.

189. Panasonic pled guilty for its role in a nearly six and a half year-long conspiracy to fix prices of switches, steering angle sensors, and automotive high intensity discharge ballasts installed in cars sold in the United States and elsewhere.

190. Panasonic agreed to pay a $45.8 million criminal fine, and a number of its executives pled guilty in exchange for limited fines and imprisonment.

191. Sanyo agreed to plead guilty for its role in a year and a half long conspiracy to fix prices on cylindrical lithium ion battery cells sold worldwide for use in notebook computer battery packs, and agreed to pay a $10.731 million criminal fine.

## VII. FRAUDULENT CONCEALMENT

192. Plaintiff has had neither actual nor constructive knowledge of the pertinent facts constituting their claims for relief asserted herein, despite their diligence in trying to discover such facts. Plaintiff and members of the Class did not discover, and could not have discovered through the exercise of reasonable diligence, the existence of the conspiracy alleged herein until in or about March 2014, when investigations by the DOJ and competition and law enforcement authorities in the People's Republic of China, Japan, Taiwan, South Korea and the European Commission were made public.

193. Defendants engaged in a secret conspiracy that did not give rise to facts that would put Plaintiff or the Class on inquiry notice that there was a conspiracy among capacitor manufacturers to artificially fix, raise, maintain or stabilize prices for aluminum or tantalum electrolytic capacitors, as well as to restrict their respective output by unjustifiably extending production lead times. In fact, Defendants had secret discussions about price and output and, in furtherance of the conspiracy, they agreed not to discuss publicly the nature of the scheme. Defendants also gave pretextual justifications for the pricing changes and the reductions in output that occurred during the Class Period.

194. Indeed, Defendants relied on a variety of market-based explanations for pricing changes and reductions in output through extension of production lead times in order to conceal the conspiracy.

195. With regard to aluminum electrolytic capacitors, Defendants often attributed price changes and increased production lead times to difficulties procuring the necessary raw materials to manufacturer their products.

196. For example, in 2010, Defendants Nichicon, Nippon Chemi-Con and Panasonic each made a number public statements to industry and technology media in which they attributed supply limitations and price quote adjustments to shortages of aluminum foil and increasing costs for other raw materials required for manufacturing.

197. These explanations are belied by industry reports and data that characterize aluminum foil as a widely available raw material, and aluminum electrolytic capacitors as being the product least susceptible to raw material price shocks.

198. With regard to tantalum electrolytic capacitors, Defendants often attributed price changes and increased production lead times to difficulties procuring the necessary tantalum to

manufacturer their products.

199. For example, in 2010 and 2011, Defendants Vishay and Panasonic each made a number public statements to industry and technology media attributing supply limitations and pricing adjustments for their tantalum electrolytic capacitors to raw materials supply issues.

200. These explanations are belied by industry and other media reports that criticize the lack of true visibility into the market for tantalum, highlight tantalum capacitor manufacturers' close ties and business arrangements with tantalum mining operations, and recognize manufacturers' efforts to process certain raw materials in-house.

201. Additionally, these explanations are belied by certain other Defendants, such as KEMET, which noted in a 2010 "Tantalum Market Update" letter in that

> the tantalum capacitor industry is running at or near capacity, as witnessed by the increased lead times. *This immediate issue is not the result of raw material availability but due to the lack of investment in capacity over the last 10 years—a consequence of industry pricing pressures which have driven margins to a point where we have been unable to realize reinvestment economics.* (Emphasis added.)

202. Aside from the product-specific explanations noted above, Defendants at various times during the Class Period also issued a multitude of other non-market excuses for pricing changes and reductions in output, such as labor shortages and shipping delays due to weather in Asia.

203. More specifically, from 2011 to 2013, Defendants Hitachi Chemical, Nippon Chemi-Con, Nichicon, Rubycon and Elna attributed some degree of production delays to the lasting effects of the 2011 Tohoku earthquake and tsunami in eastern Japan.

204. Further, 2011, Defendants NEC Tokin and ROHM attributed production delays to flooding in Thailand.

205. Even if the explanations Defendants provided were partially grounded on real events, Defendants still unjustifiably and disproportionately manipulated prices or extended production lead times beyond any reasonably justifiable adjustments necessary to account for any actual pricing impact or lead time increases. Indeed, the excuses given by Defendants for their price changes and extended production lead times were always misleading (if not outright false), because they lulled Plaintiff and members of the Class into believing that the price changes and extended production lead times were the

normal result of competitive and economic market forces, rather than the product of collusive, unlawful efforts. As alleged herein, Defendants and their co-conspirators made statements in the media in support of price changes that were presumed to be true and were designed to convince members of the Class to pay purportedly legitimate prices.

206. Defendants' explanations for price changes and extended lead times were pretextual, and materially false or misleading, and served only to cover up Defendants' conspiracy. As a result of Defendants' fraudulent concealment of their conspiracy, the running of any statute of limitations has been tolled with respect to any claims that Plaintiff and the Class members have as a result of the anticompetitive and unlawful conduct alleged herein.

## VIII. EFFECTS OF DEFENDANTS' CONSPIRACY ON THE U.S. MARKET FOR ALUMINUM AND TANTALUM ELECTROLYTIC CAPACITORS AND INJURY TO PLAINTIFF AND THE CLASS

207. Defendants' combination and conspiracy as set forth herein has had the following effects, among others:

a. Restraint on price competition among Defendants in the sale of their respective aluminum and tantalum electrolytic capacitors during the Class Period to purchasers in the United States;

b. Prices for aluminum and tantalum electrolytic capacitors sold by Defendants during the Class Period to purchasers in the United States have been raised, fixed, maintained, and stabilized at artificial and non-competitive levels;

c. The supply of Defendants' aluminum and tantalum electrolytic capacitors available for sale during the Class Period to purchasers in the United States has been artificially and unjustifiably restrained; and

d. Direct purchasers from Defendants have been deprived of the benefit of free and open competition on the basis of price in the market for aluminum and tantalum electrolytic capacitors.

208. As a direct and proximate result of Defendants' anticompetitive and unlawful conduct, Plaintiff and the Class have been injured in their business and property in that, during the Class Period, they paid more for the aluminum or tantalum electrolytic capacitors they purchased directly from

Defendants than they would have in the absence of Defendants' conduct.

209. Plaintiff and the Class have been damaged in an amount subject to proof and to be determined at trial.

**CLAIM FOR RELIEF**

**RESTRAINT OF TRADE IN VIOLATION OF THE SHERMAN ACT § 1**
**15 U.S.C. § 1**
**(Alleged against all Defendants)**

210. Plaintiff hereby repeats and incorporates by reference each proceeding and succeeding paragraph as though fully set forth herein.

211. This claim is pleaded as to all Defendants.

212. Beginning at least as early as January 1, 2005, the exact date being unknown to Plaintiff and the Class and exclusively within the knowledge of Defendants, Defendants entered into a continuing combination or conspiracy to unreasonably restrain trade and commerce in violation of Section 1 of the Sherman Act (15 U.S.C. § 1) by artificially reducing or eliminating competition for the pricing of aluminum and tantalum electrolytic capacitors directly sold to purchasers in the United States.

213. In particular, Defendants have combined and conspired to raise, fix, maintain or stabilize the prices of aluminum and tantalum electrolytic capacitors sold to purchasers in the United States during the Class Period.

214. Additionally, Defendants have combined and conspired to set artificial and unjustified production lead times to limit available supply of aluminum and tantalum electrolytic capacitors sold to purchasers in the United States during the Class Period.

215. As a result of Defendants' and their co-conspirators' unlawful conduct and acts taken in furtherance of their conspiracy, prices for aluminum and tantalum electrolytic capacitors sold to purchasers in the United States during the Class Period were raised, fixed, maintained or stabilized at various times, and the available supply of these products were at times artificially limited, thereby eliminating natural price competition among Defendants who, in a market unfettered by their manipulation, would have competed against each other on the basis of price for sales of these

capacitors.

216. The combination or conspiracy among Defendants consisted of a continuing agreement, understanding and concerted action among Defendants and their co-conspirators.

217. For purposes of formulating and effectuating their combination or conspiracy, Defendants and their co-conspirators did those things they combined or conspired to do, including:

a. Participating in meetings and conversations to discuss their respective prices and supply of aluminum and tantalum electrolytic capacitors and how they could effectively coordinate their actions to restrain trade for these products;

b. Communicating in writing and orally to raise, fix, maintain or stabilize prices for aluminum and tantalum electrolytic capacitors, and to set artificial and unjustified production lead times to limit available supply of these capacitors;

c. Agreeing to coordinate and manipulate the prices and available supply of capacitors directly sold to purchasers in the United States in a manner that deprived the purchasers of free and open price competition;

d. Issuing or signaling to each other price announcements, price quotations and production lead times for specific aluminum and tantalum electrolytic capacitor products in accordance with the agreements Defendants reached among themselves;

e. Selling aluminum and tantalum electrolytic capacitors to purchasers in the United States at noncompetitive and artificial prices Defendants collusively determined; and

f. Providing pretextual justifications to purchasers and the public to explain any raises, maintenance, or stabilization of the prices for Defendants aluminum and tantalum electrolytic capacitors.

218. Defendants' anticompetitive and unlawful conduct is per se illegal.

219. As a result of Defendants' anticompetitive and unlawful conduct, Plaintiff and members the Class have been injured in their businesses and property in that they have paid more for the aluminum or tantalum electrolytic capacitors they purchased during the Class Period than they otherwise would have paid in the absence of Defendants' conduct.

## DEMAND FOR JUDGMENT

**WHEREFORE,** Plaintiff Chip-Tech, Ltd., requests that the Court enter judgment on its behalf and on behalf of the Class defined herein, by adjudging and decreeing that:

A. This action may proceed as a class action, with Plaintiff serving as the Class Representative, and with Plaintiff's counsel as Class Counsel;

B. Defendants have combined and conspired in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, and that Plaintiff and the Class have been injured in their business and property as a result of Defendants' violations;

C. Plaintiff and the Class are entitled to recover damages sustained by them, as provided by the federal antitrust laws under which relief is sought herein, and that a joint and several judgment in favor of Plaintiff and the Class be entered against Defendants in an amount subject to proof at trial, which is to be trebled in accordance with Section 4 of the Clayton Act, 15 U.S.C.S. § 15;

D. Plaintiff and the Class are entitled to pre-judgment and post-judgment interest on the damages awarded them, and that such interest be awarded at the highest legal rate from and after the date this class action complaint is first served on Defendants;

E. Plaintiff and the Class are entitled to equitable relief appropriate to remedy Defendants' past and ongoing restraint of trade, including:

a. A judicial determination declaring the rights of Plaintiff and the Class, and the corresponding responsibilities of Defendants; and

b. Issuance of a permanent injunction against Defendants and their parents, subsidiaries, affiliates, successors, transferees, assignees and the respective officers, directors, partners, agents, and employees thereof and all other persons acting or claiming to act on their behalf from continuing and maintaining the conspiracy or agreements alleged herein;

F. Defendants are to be jointly and severally responsible financially for the costs and expenses of a Court-approved notice program through post and media designed to give immediate notification to the Class;

G. Plaintiff and the Class recover their costs of this suit, including reasonable attorneys'

fees as provided by law; and

H. Plaintiff and the Class receive such other or further relief as may be just and proper.

**JURY TRIAL DEMANDED**

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiffs demands a trial by jury of all the claims asserted in this complaint so triable.

Dated: July 18, 2014

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